

REMARKS

Applicants add new claim 318. Accordingly, claims 188-191 and 314-318 are all the claims pending in the application.

As a preliminary issue, Applicants request that the Examiner consider the references cited in the IDSs of September 30, 2005 and July 13, 2007 and return signed and initialed copies of the PTO forms with the next Office communication.

Claim rejections

Claims 188-191 and 314-317 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jain (US Patent No. 6,515,257) in view of James (US Patent No. 5,463,200), Sasaki (US Patent 6,977,775), Miyashita (JP-358179816), and Das (US Patent No. 5,498,850).

Claims 190 and 191 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jain in view of James, Sasaki, Miyashita (JP-358179816), Das (US Patent No. 5,498,850) and Tamaoki (JP 06043505) or Somei (JP 2003051142).

Claims 188-191 and 314-317 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jain in view of James, Loschner (US Patent No. 6,989,546), Abboud (US Patent No. 6,433,348), Miyashita and Das.

Claims 190 and 191 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jain in view of James, Loschner, Abboud, Miyashita, Das and Tamaoki or Somei.

Applicants respectfully traverse these rejections for at least the following reasons.

Independent claim 188

Claim 188 recites, inter alia, “said independently focusing comprising moving at least one optical element, thus changing a focal length for focusing an optical beam, associated with one of the plurality of laser beams to be focused, without f-theta optical elements.” Applicants submit that none of the cited references, alone or in reasonable combination teach or suggest at least this feature.

Regarding this limitation, the Examiner asserts that James, Sasaki and Miyashita disclose the feature of the claim 188 recited above.

First, Applicants submits that it would not have been obvious to combine the teachings of Jain, James, Sasaki and Miyashita for at least the following reasons.

Jain is directed to an opto-mechanical system which delivers controlled pulses of laser energy. Jain discloses a microlens array 10 and micro-mirror array 12 (FIG. 1). However, none of the lenses of the microlens array provide any independent focusing, and none of the lenses of the microlens array are moveable. With respect to the micro mirror array, Applicants submit likewise, that none of the micro mirrors provide any focusing, and none of the micro mirrors provide a directing or beams to independently selectable locations. Rather, the micro mirrors are each in either an on state or an off state to either direct a beam incident thereon to a substrate or to discard a beam incident thereon.

James is directed to a method of marking of a work piece by light energy in order to create selected pattern. James discloses lenslets 16 through which light passes to constitute a beamlet 18 that is focus to a focal plane FP. Moreover, James discloses that the lenslet modules

are available in which the focal length of the respective lenslets are different from each other.
(column 4, lines 35-55).

Sasaki describes focusing units 59 each including a mirror 44, lenses 46 and 48 and a convex lens 50 (FIG. 7). Further, Sasaki discloses that the focusing units 59 are movable with an allowable range (column 8, lines 7-15). Specifically, Sasaki discloses that moving the focusing units 59 in a lateral direction indicated by the arrow C in FIG. 8. This direction is illustrated in FIG. 8 to be sideways direction and not in the direction of the sub-beam.

As previously discussed in the March 7, 2008 Amendment (pp. 6-7) one of ordinary skill in the art would not have been motivated to modify the laterally immobile microlens 12 of the Jain or the lenslet 18 of James based on the movable focusing units 59 of Sasaki.

Miyashita is directed to adjusting a focal length by moving a holding member that holds a lens array. Lens arrays 1 and 3 are held as one body in a first housing 11 and an optical path member 5 is held in a second housing 12. According to the '816 reference, the second housing 12, engaged with the end-part of the first housing 11, is movable in the direction of the optical axis.

However, for at least the same reasons as discussed in the March 7th Amendment with respect to Sasaki, Applicants submit that it would not have been obvious to combine the teaching of Miyashita with Jain and James.

First, as discussed above, both Jain and James are systems in which the focusing elements are laterally fixed. There is no suggestion that either reference would benefit from the use of movable focusing elements. Thus, there is no reason why one of ordinary skill in the art would

have been motivated to combine the teachings of the Miyashita (or Sasaki) with the teachings of James and Jain.

Second, Applicants respectfully submit that even if, *assuming arguendo*, the references were combined as suggested by the Examiner, the resultant product of a combination even including Sasaki and Miyashita still would not disclose the feature of “said independently focusing comprising moving at least one optical element, thus changing a focal length for focusing an optical beam, associated with one of the plurality of laser beams to be focused, without f-theta optical elements.”

For example, the Miyashita is directed to towards adjusting a focal by moving the holding member 12 that holds an optical path member. The Miyashita describes lens arrays 1 and 3 that are held as one body in a first housing 11 and an optical path member 5 that is held in a second housing 12. The second housing 12 engaged with the end-part of the first housing 11 is moved in the direction of the optical axis. However, the Miyashita does not disclose independently focusing by moving at least one optical element, thus changing a focal length for focusing an optical beam.

Specifically, the Miyashita discloses moving the second housing 12 in the direction of the optical axis indicated by the arrow in FIG. 3. However, since the Miyashita discloses moving the housing 12, the focal length is changed together and not independently for each optical beam, as recited in the claim. That is, the Miyashita at most discloses adjusting the focal length together as a group (i.e., dependent) by moving the housing which holds the optical path converting member 5 and does not disclose independently focusing the optical beam by moving at least one optical element and changing a focal length.

The Examiner appears to be selectively picking and choosing elements in hindsight based on Applicant's claimed invention without considering the references in their entirety. Therefore, Applicants submit that it would not have been obvious to combine the references as alleged by the Examiner.

Jain, James, Sasaki, Das, Tamaoki and Somei does not remedy the discussed deficiencies of Miyashita.

Furthermore, during the interview conducted on August 28, 2008, the Examiner asserted that Loschner and Abboud discloses "said independently focusing comprising moving at least one optical element, thus changing a focal length for focusing an optical beam, associated with one of the plurality of laser beams to be focused, without f-theta optical elements." Applicants respectfully disagree with the Examiner for at least the following reasons.

Loschner is directed to particle multibeam lithography. The elements of Loschner which provide independent direction of a number of beams are the deflection units 110 which are electrostatic multipoles, as discussed in the paragraph bridging columns 6 and 7 of Loschner. As described, these multipoles are magnetic elements (for example multiple electrode arrangements, as discussed in col. 7, lines 57), *not optical elements*.

Abboud is directed to scanning beam lithography using beams that have a shaped cross section. Abboud discloses a beam shaper 56 that is controlled both in terms of being on or off and also for provided variable shapes. When the beam shaper 56 is on, the beam assumes any one of a number of cross-sectional shapes. However, this does not disclose moving at least one optical element, thus changing a focal length for focusing an optical beam, associated with one of the plurality of laser beams to be focused, without f-theta optical elements.

Furthermore, since Loschner is directed to particle multibeam lithography which provides independent direction of a number of beams through electrostatic multipoles, there is no reason why one of ordinary skill in the art would have been motivated to modify Loschner to incorporate the teachings of Miyashita which is directed to movable optical elements. In fact, such a modification would deviate from the primary teachings of the Loschner reference.

Jain, James, Loschner, Abboud, Das, Tamaoki and Somei does not remedy the discussed deficiencies of Miyashita.

In view of the above, Applicants submit that claim 188 is patentable over any of the cited combination of references and that claims 189-191 and 314-317 are patentable at least by virtue of their dependency. Applicants respectfully request that the rejection of the claims be reconsidered and withdrawn.

New claims


Applicants submit that new claims 318 and 319 depend from claim 188, and therefore are allowable at least by virtue of their dependency. Claims 318 and 319 are at least supported by FIG. 1 and its corresponding description on paragraph [0108] in the specification.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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